**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

HARRIS CORPORATION, Plaintiff, vs. HUAWEI DEVICE USA, INC. HUAWEI DEVICE CO., LTD., HUAWEI TECHNOLOGIES USA INC., HUAWEI TECHNOLOGIES CO. LTD., AND HUAWEI DEVICE (SHENZEN) CO., LTD., Defendants.	No. 2:18-cv-00439-JRG Jury Trial Demanded

**DEFENDANTS' RULE 12(b)(6) MOTION TO DISMISS AMENDED COMPLAINT
FOR FAILURE TO STATE A CLAIM UNDER 35 U.S.C. § 101**

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TABLE OF DEFINITIONS

Term	Definition
Huawei	Defendants Huawei Device USA, Inc., Huawei Device Co., Ltd., Huawei Technologies USA Inc., Huawei Technologies Co. Ltd., and Huawei Device (Shenzen) Co., Ltd.
Harris	Plaintiff Harris Corporation
'678 patent	U.S. Patent No. 7,224,678 (attached as Exhibit A)
'690 patent	U.S. Patent No. 7,327,690 (attached as Exhibit B)
'227 patent	U.S. Patent No. 6,535,227 (attached as Exhibit C)
'986 patent	U.S. Patent No. 6,958,986 (attached as Exhibit D)
'426 patent	U.S. Patent No. 7,027,426 (attached as Exhibit E)
'537 patent	U.S. Patent No. 6,980,537 (attached as Exhibit F)
'572 patent	U.S. Patent No. 7,440,572 (attached as Exhibit G)
Asserted Patents	The '678, '690, '227, '986, '426, '537, and '572 patents
Challenged Claims	All claims of the Asserted Patents

NB: All emphases added unless otherwise noted.

Huawei moves to dismiss the Amended Complaint (Dkt. 13) for failure to state a claim because all claims of the Asserted Patents are patent-ineligible under 35 U.S.C. § 101.

I.   INTRODUCTION

Harris has asserted seven patents claiming patent-ineligible subject matter. For each patent, the Amended Complaint asserts one claim, each of which is representative of the others in that patent for purposes of this motion. Each of the Challenged Claims is analogous to claims the Federal Circuit has determined are abstract in controlling cases, and none recites anything inventive—such as new components, or a technological improvement to the functioning of recited conventional components—that might transform the claim into patent-eligible subject matter. Instead, the Challenged Claims are written in functional terms, setting forth a desired result instead of a particular solution for achieving that result. To the extent the Challenged Claims recite tangible components at all, those components—such as transceivers, controllers, etc.—have existed for decades, and the claims recite them to perform only their conventional functions (*e.g.*, transceivers transmitting and receiving signals, controllers sending commands to system components).

The Asserted Patents fall into four technical groups as summarized below.

Network intrusion detection: The nearly identical '678 and '690 patents (Exs. A, B hereto) are directed to the impermissibly abstract idea of monitoring communications to detect suspicious behavior and generating an alert. The patents' claims are indistinguishable from, and indeed broader than, the claims found to be patent-ineligible in *FairWarning IP, LLC v. Iatric Systems, Inc.*, which were "directed to collecting and analyzing information to detect misuse and notifying a user when misuse is detected." 839 F.3d 1089, 1094 (Fed. Cir. 2016). Here, the claims recite the same steps as in *FairWarning*, namely "detecting" improper access/misuse in a computer environment by "monitoring" transmissions and generating a notification or alert upon detection. The claims do not contain any inventive concept, as they recite merely conventional computer components for performing their conventional functions.

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*Color-coded network map***:** The '227 patent (Ex. C hereto) is directed to the abstract idea of displaying a color-coded network map on a graphical user interface (GUI). The '227 patent claims are even more abstract than those claims the Federal Circuit found ineligible in *Electric Power Group, LLC v. Alstom S.A.*, which claims were directed to the abstract idea of "collecting information, analyzing it, and displaying certain results of the collection and analysis." 830 F.3d 1350, 1353 (Fed. Cir. 2016). Indeed, the '227 patent claims could be performed with colored pencil and paper. Under *Alice* step two, there can be no legitimate dispute that the '227 patent claims add nothing inventive. The specification admits that the alleged invention can be applied to "an existing network" ('227 at 6:33-36); that the claimed network map can be generated manually or with existing HP software (*id.* at 6:36-46, 7:55-57); that the GUI is a "standard type of Windows interface" (*id.* at 8:47-49); and that the use of the claimed network icons is "known to those skilled in the art" (*id.* at 8:36-39) and is merely a design choice (*id.* at 8:36-39 (noting that text or Excel files are alternatives)). And the '227 claims do not add any new components, or provide a technological improvement to the functioning of the recited conventional components—which would have been needed "to 'transform' the claimed abstract idea into a patent-eligible application." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 218-21 (2014) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012)).

Wireless network management: The '986, '426, and '537 patents (Exs. D, E. F hereto) likewise claim ineligible subject matter under Federal Circuit precedent. The '986 patent claims are directed to information acquisition (communication link usage) and organization (scheduling time slots), which indisputably is an abstract idea. *See, e.g.*, *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d 1335, 1346 (Fed. Cir. 2018) ("[T]he recited claims are directed to an abstract idea because they consist of generic and conventional information acquisition and organization steps . . . ."). Similarly, the '426 and '537 patent claims are directed to sending and directing information in a network and, in the case of the '537 patent, monitoring received information. These, too, are abstract ideas ineligible for protection. *See, e.g.*, *Affinity Labs of Texas, LLC v. DirecTV, LLC*, 838 F.3d 1253, 1261 (Fed. Cir. 2016) (invalidating claims "involv[ing] the

conveyance and manipulation of information using wireless communication and computer technology"); *Two-Way Media Ltd. v. Comcast Cable Commc'ns LLC*, 874 F.3d 1329, 1336 (Fed. Cir. 2017) (invalidating claims "directed to the abstract idea of [*inter alia*] (1) sending information, (2) directing the sent information, [and/or] (3) monitoring receipt of the sent information"). Under *Alice* step two, the claims fail to recite any inventive concept. The only hardware components recited in the claims of the network management patents are conventional wireless network components, *e.g.*, transceivers, processors, and controllers. Using these existing components in their conventional manner does not supply an inventive concept. *Alice*, 573 U.S. at 222 (finding no inventive concept where the process could be "carried out in existing computers long in use" (citation omitted)).

   Cryptography: The claims of the '572 patent (Ex. G hereto) are directed to the abstract idea of encoding and decoding data (encrypting and decrypting address and data information) used in a network. The Federal Circuit has routinely held such claims to be impermissibly abstract. *See, e.g.*, *RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322, 1328 (Fed. Cir. 2017) (invalidating claims "directed to encoding and decoding image data, an abstract idea"). Far from reciting an "inventive concept," the '572 patent claims require only conventional, generic components performing their conventional functions—a transceiver and medium access controller for transmitting data, and a cryptography circuit for encrypting and decrypting data. *See Affinity Labs*, 838 F.3d at 1261 (invalidating claims where "the components were conventional and were used in conventional ways"); *Intellectual Ventures I LLC v. Erie Indemnity Co.*, 850 F.3d 1315, 1328-29 (Fed. Cir. 2017) ("*Intellectual Ventures 1*") (sending and receiving information using computers is routine and generic).

II.   LEGAL STANDARDS

   Abstract ideas are not patentable. *Alice*, 573 U.S. at 216-17. Courts must apply a two-step framework "for distinguishing patents that claim . . . abstract ideas from those that claim patent-eligible application of those concepts." *Id.* at 217.

   At *Alice* step one, courts "must first determine whether the claims at issue are directed to

a patent-ineligible concept." *Id.* at 218. This requires "looking at the 'focus' of the claims, their 'character as a whole,'" to determine if they are directed to excluded subject matter. *Elec. Power*, 830 F.3d at 1353. "The inquiry often is whether the claims are directed to 'a specific means or method' for improving technology or whether they are simply directed to an abstract end-result." *RecogniCorp*, 855 F.3d at 1326 (citation omitted). A claim that can be performed mentally or analogized to brick-and-mortar concepts likely is directed to an abstract idea. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (Fed. Cir. 2011) ("[M]ethods which can be performed mentally, or which are equivalent of human mental work, are unpatentable abstract ideas . . . ."); *see also, e.g.*, *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1314 (Fed. Cir. 2016) (analogizing abstract claim to brick-and-mortar post office).

At *Alice* step two, courts search for an "'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221 (quoting *Mayo*, 566 U.S. at 73). There is nothing inventive about implementing an abstract idea using "'well-understood, routine, conventional activit[ies]' previously known to the industry." *Id.* at 225 (quoting *Mayo*, 566 U.S. at 73). Limiting a claim to a particular environment also does not add any inventive concept to save an abstract claim from an ineligibility finding. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014).

Patent eligibility under § 101 is a question of law, which courts may resolve on a motion to dismiss. *See OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362 (Fed. Cir. 2015). While courts must accept the factual allegations in the complaint and consider them in the light most favorable to the non-moving party, "[i]n ruling on a 12(b)(6) motion, a court need not 'accept as true allegations that contradict matters properly subject to judicial notice or by exhibit,' such as the claims and the patent specification." *Secured Mail Solutions LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 913 (2017) (citation omitted). Thus, dismissal of the Complaint on patent ineligibility grounds is appropriate where there is no genuine dispute of fact

that the recited claim elements are well-understood, routine, and conventional.[1]

Further, courts are permitted to analyze § 101 issues based on "representative claims" where, as here, the challenged claims are "substantially similar and linked to the same abstract idea." *Content Extraction*, 776 F.3d at 1348; *see also Mortg. Grader*, 811 F.3d at 1324 n.6; *eDekka LLC v. 3Balls.com, Inc.*, No. 2:15-CV-541 JRG, 2015 WL 5579840, at *5 (E.D. Tex. Sept. 21, 2015) (Gilstrap, J.).

III.   THE '678 AND '690 NETWORK INTRUSION DETECTION PATENTS

A.   Background of the '678 and '690 Patents and Their Representative Claims

The '678 and '690 patents, which share the same title, inventor, filing date, and assignee, and have nearly identical specifications, are directed to detecting intrusions into a wireless LAN (local area network) or MAN (metropolitan area network).[2] *See* '678 and '690 at 2:32-34. Wireless LANs and MANs admittedly were known, as were intrusion detection systems. '678 and '690 at 1:14-17, 1:64-2:7. According to the patents, however, prior art intrusion detection systems may not detect an intrusion where a "rogue station" has gained access to an "authorized address." '678 and '690 at 2:23-28. The patents' purported solution is to monitor transmission of data between network stations for one of several different criteria, and to generate an alert if that criterion is detected. For example, '678 patent claim 12, and '690 patent claim 40, recite:[3]

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[1] In fact, in denying the petition for rehearing *en banc* in *Aatrix Software, Inc. v. Green Shades Software, Inc.*, a plurality of judges affirmed that "[i]n a situation where the specification admits the additional claim elements [relied upon for the alleged inventive concept] are well-understood, routine, and conventional, it will be difficult, if not impossible, for a patentee to show a genuine dispute." 890 F.3d 1354, 1356 (Fed. Cir. 2018) (Moore, J., concurring).

[2] The only differences in the specifications, each of which incorporates by reference the other, *see* '678 at 11:12-17, '690 at 11:23-27, are in the "Summary of the Invention" section. Accordingly, citations are to common portions of the '678 and '690 patents only.

[3] Harris's Amended Complaint alleges that Huawei infringes "one or more claims" of the '678 and '690 patents, but specifically identifies only claim 12 of the '678 patent and claim 40 of the '690 patent. Am. Compl., ¶¶ 95, 108. As explained below, those claims are nearly identical.

12. A wireless local or metropolitan area network comprising:
 	
    a *plurality of stations* **for transmitting data therebetween** using a media access layer (MAC), each of said stations having a respective MAC address associated therewith; and
 	
    a *policing station* **for detecting intrusions into the wireless network by**
 	
        monitoring transmissions among said plurality of stations to detect failed attempts to authenticate MAC addresses; and
 	
        generating an intrusion alert based upon detecting a number of failed attempts to authenticate a MAC address.
	40. A wireless local or metropolitan area network comprising:
	
	    a *plurality of stations* **for transmitting data** via a medium access control (MAC) layer, each station having a MAC address associated therewith to be transmitted with data sent therefrom; and
	
	    a *policing station* **for detecting intrusions into the wireless network by**
	
	        monitoring transmissions among said plurality of stations to detect collisions of a same MAC address; and
	
	        generating an intrusion alert based upon detecting a threshold number of collisions of a same MAC address.

The only components (italicized) in claims 12 and 40 are recited using functional language (bolded), and claims 12 and 40, like all other claims, provide no limitation on ***how*** the monitoring is performed or ***how*** the generation of an alert is accomplished.

Claim 12 of the '678 patent and claim 40 of the '690 patent are representative of all claims of the '678 patent (1-72) and of the '690 patent (1-80), as all claims are "substantially similar and linked to the same abstract idea" as '678 claim 12 and '690 claim 40—to wit, monitoring communications to detect suspicious behavior and generating an alert. *Content Extraction*, 776 F.3d at 1348. All claims monitor the same class of information (transmissions among stations) to produce the same result ("generating an intrusion alert"). The only difference between the claims is (a) ***what*** criteria the monitoring is looking to detect and, as a result, what the intrusion detection alert is "based upon" (*i.e.*, detection of the specified criteria),[4] or (b)

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[4] *E.g.*, frame check sequence errors ('678, cls. 1-4, 9, 42, 50); contention/contention-free mode operation ('678, cls. 5-6, 15-16, 23-24, 30, 33, 36, 39, 46-47, 54-55, 60-61, 65, 68-69, 72); service set IDs ('678, cls. 7, 17, 25, 31, 37, 48, 56, 62, 66, 70; '690, cls. 9, 52); transmission over a specific channel ('678, cls. 8, 18, 26, 32, 38, 49, 57, 63, 67, 71; '690, cls. 10, 53); failed

addition of generic, conventional components—*e.g.*, base or wireless stations ('678, cls. 10-11, 20-21, 28-29, 34-35, 40-41; '690, cls. 12-13, 22, 31, 39, 43). Indeed, every independent claim can be written as a method of or apparatus for "monitoring transmissions to detect [X] and generating an intrusion alert based on detecting [X]"—affirming they are abstract.

> **B.**   ***Alice* Step One: The Claims Are Directed to the Abstract Idea of Monitoring Communications to Detect Suspicious Behavior and Generating an Alert**

The '678 and '690 patents are directed to the idea of monitoring and analyzing information to detect suspicious behavior and generating an alert—precisely what the Federal Circuit found to be impermissibly abstract in *FairWarning*. 839 F.3d at 1094. The claims at issue in *FairWarning* are indistinguishable from the claims here.[5] There, the claims recited "detecting improper access of a patient's protected health information (PHI) . . . in a computer environment" by "selection of at least one criterion . . . representing at least one of transactions or activities associated with the patient's PHI that is indicative of improper access" (*e.g.*, who accessed, when accessed, number of times accessed), "applying the rule to audit log data" to determine if the criterion has been met, storing in memory a hit if the criterion is met, and "provid[ing] notification if the event has occurred." *Id.* at 1096-97. Similarly, the claims here are merely to monitoring data (a transmission) to determine if a criterion is met (*e.g.*, the number of failed attempts to authenticate MAC addresses), and generating an alert if the criterion is met. As in *FairWarning*, the claims' use of a specific criterion to indicate improper access (*e.g.*, a count of the number of failed attempts to authenticate a MAC address) does not save the claims from abstractness. *See SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018)

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attempts to authenticate MAC addresses ('678, cls. 12-13, 19, 43-44, 51-52, 58); illegal NAV value ('678, cls. 14, 22, 27, 45, 53, 59, 64); transmission during an unauthorized period ('690, cls. 1, 11, 14, 16-19, 21, 44, 54-55); usage of non-consecutive MAC sequence numbers ('690, cls. 2, 15, 23, 30, 45, 56-61, 63, 70); collisions of certain types of packets ('690, cls. 3-6, 24-27, 32-35, 38, 46-50, 64-67, 71-74, 77); collisions of the same MAC address ('690, cls. 7-8, 20, 28-29, 36-37, 40-42, 51, 62, 68-69, 75-76, 78-80).

[5] Attached as Appendix A is a chart comparing representative claim 12 of the '678 patent and representative claim 40 of the '690 patent to the representative claim at issue in *FairWarning*.

(holding impermissibly abstract claims directed to "selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis").

Nor does the claims' recital of generic and tangential computer components save the claims from abstractness. *See Intellectual Ventures I LLC v. J. Crew Grp., Inc.*, No. 6:16-CV-196-JRG, 2016 WL 4591794, at *4 (E.D. Tex. Aug. 24, 2016) (Gilstrap, J.) ("*J. Crew*") (using "generic computer network technology to achieve an online variation of a well-established, real-world practice" does not save claims from abstractness). The "station" limitation is claimed only functionally, and the specification states that a wireless station may be a generic computer, "e.g., a laptop with a wireless network interface card." '678 and '690 at 1:17-21. Likewise, the "policing station" is claimed in only functional terms, and is described in the same functional terms in the specification. *See, e.g.*, '678 at 6:8-10; 12:47-55, '690 at 6:20-22; 15:10-17. *Compare Univ. Fla. Research v. Gen. Elec. Co.*, No. 2018-1284, slip op. at 10 (Fed. Cir. Feb. 26, 2019) ("The '251 patent 'fails to provide any technical details for the tangible components, . . . instead predominantly describ[ing] the system and methods in purely functional terms.'" (citation omitted)).

The claims are impermissibly abstract for the additional, independent reason that they merely introduce existing practices and mental processes into a new technological environment—namely, a computer network. The Federal Circuit has repeatedly rejected such claims. *See FairWarning*, 839 F.3d at 1094-95 (invalidating claims that "merely implement an old practice in a new environment"); *Intellectual Ventures I*, 850 F.3d at 1330 (invalidating claims directed to "an age-old practice" because an "abstract idea does not become nonabstract by limiting the invention to a particular . . . technological environment, such as the Internet").

Here, the claimed process has long been practiced by humans to detect intrusion into protected spaces or groups, such as a castle or a secret society where a password is required to pass the gates or enter the group. The gatekeeper would detect failed attempts to access the space/group and raise an alarm.

As this analogy confirms, the claims can be performed mentally or with pen and paper—

further underscoring their abstractness. *See, e.g.*, *CyberSource*, 654 F.3d at 1371 ("[M]ethods which can be performed mentally, or which are equivalent of human mental work, are unpatentable abstract ideas."). Monitoring data transmissions for specified anomalies, and generating an alert ("Intruder!") if such an anomaly is found, requires nothing more than one's mental faculties. Moreover, automating abstract processes using computer technology is still abstract. *See Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017) ("[M]ere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology.").

Finally, as is readily apparent, the claims are not "necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks." *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014). Instead, the claims apply an abstract idea to a particular environment—a computer network. But that does not render the claims any less abstract. *See, e.g.*, *Umbanet, Inc. v. Epsilon Data Mgmt., LLC*, 263 F. Supp. 3d 647, 653 (E.D. Tex. 2017), *aff'd*, 745 F. App'x 168 (Fed. Cir. 2018) (Gilstrap, J.) ("Taking a generally abstract idea, such as enabling selective access to a message, and limiting it to an 'email client' alters the 'field of use, but it cannot 'render an otherwise abstract concept any less abstract.'" (citation omitted)).

C.   *Alice* **Step Two: These Result-Oriented Claims Contain No Inventive Concept to Overcome Their Abstractness**

The claims of the network intrusion patents do not recite anything inventive, either singularly or in combination, that might transform them into patent eligible subject matter. The claims' recitation of generic, conventional computer components—a wireless LAN or MAN and media access control (MAC)—does not add an inventive concept. *Alice*, 573 U.S. at 223-24. Those elements are recited at a high-level of generality, and the specifications establish that both components were conventional. *See* '678 and '690 at 1:14-17 (LAN and MAN well-known); *id.* at 1:47-56; '678 at 5:60-6:7 and '690 at 6:5-19 (referring to and incorporating by reference the "prominent" 802.11 standard, and admitting that 802.11 includes a MAC layer and provides for

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transmitting MAC addresses). The law is clear that these types of components do not supply an inventive concept. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324-25 (Fed. Cir. 2016) (holding that "a computer network" did not add an inventive concept); *Alice*, 573 U.S. at 226 (finding that a "communications controller" is "purely functional and generic").

Likewise, the "plurality of stations" and "policing station," which are claimed and described in functional terms, *see supra* p.6, do not save representative claim 12 at *Alice* step two, as there is nothing inventive about a generic component for performing an abstract idea.

Indeed, representative claim 12 as a whole is written in entirely functional terms, setting forth a desired result instead of a particular solution for achieving that result—a hallmark of claims that lack an inventive concept. *Elec. Power*, 830 F.3d at 1356 ("[T]he essentially result-focused, functional character of claim language has been a frequent feature of claims held ineligible under § 101."). The "monitoring" and "generating" steps call for the ability to detect intrusions and generate alerts based on, for example, detecting collisions of, or failed attempts to authenticate, a MAC address. But the claims are silent on ***how*** to detect a collision or a failed attempt, or even ***how*** to generate an intrusion alert based on such detections. *See id*. at 1355 ("Inquiry therefore must turn to any requirements for *how* the desired result is achieved." (emphasis in original)). As in *Electric Power*, "in this case the claims' invocation of computers [and] networks . . . does not transform the claimed subject matter into patent-eligible applications." *Id.*

Finally, if Harris argues that an inventive concept exists in selection of the criterion to be detected (*e.g.*, "failed attempts to authenticate MAC addresses," '678, cl. 12, which may be "[a]ny number of failed attempts," *id*. at 6:53-54), that argument would fail. As the Federal Circuit has explained, "merely selecting information, by content or source, for collection, analysis, and [announcement] does nothing significant to differentiate a process from ordinary mental processes, whose implicit exclusion from § 101 undergirds the information-based category of abstract ideas." *Elec. Power*, 830 F.3d at 1355. Moreover, the specification acknowledges that in existing security monitoring software, it was conventional to detect

intrusion by monitoring MAC addresses. *See* '678 at 1:2-2:7; '690 at 1:2-2:7.

IV.   THE '227 COLOR-CODED NETWORK MAP PATENT

A.   Background of the '227 Patent and its Representative Claim

The '227 patent is directed to a GUI that displays a color coded map of a network to depict a security posture or vulnerability of that network. '227 at Abstract. As shown in representative claim 24, for example, the alleged invention is not directed to *how* to detect (let alone remediate) network vulnerabilities; it is directed to merely the display of interactive, color-coded information on a computer screen:[6]

> 24. A graphical user interface contained on a computer screen and used for determining the security posture of a network comprising:
>
> a system design window for displaying network icons of a network map that are representative of different network elements contained within a network, wherein respective network icons are linked together in an arrangement corresponding to how network elements are interconnected within the network and a select node configuration edit box having a user selectable vulnerability profile for selecting a vulnerability profile of a network node;
>
> wherein selected portions of the network map turn a different color indicative of a vulnerability that has been established for that portion of the network after a security posture of the network has been established.

No new or unconventional components are used for that display of information. The specification admits the present invention is applied to "an existing network," *id.* at 6:33-36, and that the GUI is a "standard-type" of Windows interface, *id.* at 8:47-49. Further, the specification states that network vulnerability programs used in connection with the alleged invention are "standard [off-the-shelf] programs known by security engineers, and include HP Open View," a program the specification admits provides for automatic network discovery or manual network modeling, and graphically depicts network topology. *Id.* at 5:50-54, 6:34-38. Finally, the specification acknowledges that the use of the claimed icons is a design choice. *See id.* at 8:36-39 (stating that the network security reports can be output as icons on a GUI, an Excel file, text,

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[6] Harris's Amended Complaint alleges that Huawei infringes "one or more claims" of the '227 patent, but specifically identifies only claim 24. Am. Compl., ¶ 49.

etc., "as known to those skilled in the art"), 9:12-14 ("Naturally, network icons can be selected and moved as necessary for editing and design alternatives.").

Claim 24 is representative as each claim is directed to the graphical depiction of color-coded information about a network. Independent claims 1, 5, and 9 are nearly identical to claim 24 except that they recite that the map changes color after a security posture (cl. 1) / vulnerability posture (cl. 5) / vulnerability (cl. 9) is established by "correlating" data in a database with "any" data obtained from network vulnerability analysis programs (claim 5 also requires use of colors red and yellow). No limitation is provided on *how* that correlation is performed. Independent claim 23 is identical to representative claim 24 except that it displays a "data sensitivity box" rather than claim 24's "select node configuration edit box." Independent claim 17 is nearly identical to representative claim 24, but adds another display window (a manager window). All of the dependent claims provide merely additional limitations on what is displayed in the GUI—different colors (cls. 2, 12); arrows (cls. 4, 16); a chart or spreadsheet (cls. 10-11, 18-19); and additional display windows (cls. 3, 6-8, 13-15, 20-22).

> **B.**   ***Alice* Step One: The Claims Are Directed to the Abstract Idea of Displaying Information About a Network.**

The Federal Circuit has established that claims directed to the abstract idea of "collecting information, analyzing it, and displaying certain results of the collection and analysis" are not patent eligible. *Elec. Power*, 830 F.3d at 1353; *see also Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) ("*Capital One*") ("We conclude that the patent claims are, at their core, directed to the abstract idea of collecting, displaying, and manipulating data."). The claims of the '227 patent all fall within this category of abstract ideas: representative claim 24 recites the abstract idea of displaying certain results (color-coded network icons of different network elements) of the collection of information (security posture). Indeed, as shown in the chart attached as Appendix B, claim 24 here is indistinguishable from, and far simpler than, the claim in *Electric Power*. It is also akin to claims the Federal Circuit has found ineligible in other cases. *See Capital One*, 850 F.3d at 1338-42 (invalidating claim

directed to *inter alia* mapping data components to record types, organizing record types into a hierarchy, and displaying an interactive record on a user interface); *Move, Inc. v. Real Estate All. Ltd.*, 721 F. App'x 950, 954 (Fed. Cir.), *cert. denied*, 139 S. Ct. 457 (2018) (invalidating claims directed to "a method for collecting and organizing information about available real estate properties and displaying this information on a digital map that can be manipulated by the user" (citation omitted)).

As in *Electric Power*, the advance the claims purport to make here is "displaying the results, and not any particular assertedly inventive technology for performing th[at] function[]." *Elec. Power*, 830 F.3d at 1354; *see also Apple, Inc. v. Ameranth*, 842 F.3d 1229, 1241 (Fed. Cir. 2016) (finding ineligible claims directed to the ability to generate menus with certain features where "[t]hey do not claim a particular way of programming or designing the software to create the menus that have these features, but instead merely claim the resulting systems"). The only physical component recited in any of the claims is a generic "computer screen." And the specification of the '227 patent admits that the alleged invention can be run on a standard Pentium PC running Windows NT, that the GUI is a standard type of Windows interface, and that off-the-shelf network vulnerability analysis programs are used. *See supra* p.11.

None of the other recited elements of the claims saves them from abstractness. The recited "select node configuration edit box" of representative claim 12 (like the "manager window" of claims 5 and 17, and the "vulnerability posture window" of claim 9)—is just a generic window that displays selectable information. *See, e.g.*, '227 Fig. 8B; *see also* Figs. 7, 8A. And while claims 1 and 5 recite "correlating" information in a database with "any" information derived from a program, the claims provide no limitation on **how** that correlation is done, and in any event, correlating two sets of information cannot save the claims from abstractness. *J. Crew*, 2016 WL 4591794, at *4 (finding abstract claim combining steps of "(a) acquiring data from two sources over a network, (b) combining or integrating those data, and (c) delivering them to a user on a computer"); *see also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1350-51 (Fed. Cir. 2014) ("The method in the '415 patent claims

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an abstract idea because it describes a process of organizing information through mathematical correlations and is not tied to a specific structure or machine.").

Courts also consistently treat claims that can be performed by a person, mentally or by pen and paper, such as the '227 patent claims, as impermissibly abstract. *See, e.g.*, *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1147 (Fed. Cir. 2016); *Clear with Computers, LLC v. Altec Indus., Inc.*, Case No. 6:14-cv-79, 2015 WL 993392, at *4 (E.D. Tex. Mar. 3, 2015) (Gilstrap, J.) ("The steps performed by the claimed computer elements . . . could easily be performed by a human."). Here, a person could draw on paper "network icons of a network map that are representative of different network elements contained with a network," linking together "respective network icons . . . in an arrangement corresponding to how network elements are interconnected within the network" and color in or use a colored pencil to draw "selected portions of the network map" to "indicat[e] . . . a vulnerability that has been established for that portion of the network after a security posture of the network has been established," as required by representative claim 24. That the alleged invention might automate, using computers, this abstract concept of displaying information about a network, does not save it from abstractness. The "mere automation of manual processes using generic computers does not constitute a patentable improvement in computer technology" or make the claims non-abstract. *Credit Acceptance*, 859 F.3d at 1055; *see also Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1013 (Fed. Cir. 2018).

The claims also are impermissibly abstract for the independent reason that they merely introduce existing practices and mental processes into a particular technological environment—namely, a computer environment. *FairWarning*, 839 F.3d at 1094-95. The claimed invention here has long been in practice, even before the advent of computers, and amounts to nothing more than a way of organizing human activity that is unpatentable under *Alice*. 573 U.S. at 219-21; *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016) (invalidating claims "directed to the abstract idea of classifying and storing digital images in an organized manner."). For example, a map of any network (*e.g.*, social, military, computer, postal, spy,

drug-smuggling, police-informant, or otherwise) could be drawn in a color-coded manner to identify vulnerabilities of each node.

Finally, unlike in cases finding claims to be patent-eligible, the claims here are not directed to an asserted improvement in computer capabilities. *Cf. Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016) (finding claims non-abstract because they are directed to "a specific type of data structure designed to improve the way a computer stores and retrieves data in memory"). Rather, as noted above, the purported invention uses standard, generic components and features of a computer (*e.g.*, Windows) to perform their conventional functions (display a GUI).

C.   *Alice* Step Two: Using Conventional, Off-the-Shelf Components in Their Conventional Way Provides No Inventive Concept

The claims' recitation of generic computer components also does not supply an inventive concept. *Alice*, 573 U.S. at 222-24. For example, representative claim 24 generically recites "[a] graphical user interface," "a network," "a network map," and "network icons" to perform only the conventional functions that such components have always performed. Indeed, the specification admits that the alleged invention can be applied to "an existing network," '227 at 6:33-36, using a "standard type of Windows interface" and using off-the-shelf software, *id.* at 5:51-58, 8:47-49. *See also supra* p.11. These limitations cannot satisfy the inventive concept requirement. *See, e.g.*, *Mortg. Grader*, 811 F.3d at 1324-25 ("[G]eneric computer components such as an 'interface,' 'network,' and 'database' . . . do not satisfy the inventive concept requirement." (citation omitted)); *FairWarning*, 839 F.3d at 1096 ("[T]he use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter.").

Nor do the '227 patent claims recite anything inventive—such as new components, or a technological improvement to the functioning of the recited conventional components—that might save the claims from ineligibility. The claims are directed to nothing more than the use of conventional hardware in its conventional manner to perform the abstract idea. This is

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insufficient to provide an inventive concept needed to pass step two of the *Alice* test. *See Alice*, 573 U.S. at 223 ("[I]f a patent's recitation of a computer amounts to a mere instruction to 'implement' an abstract idea 'on a . . . computer,' that addition cannot impart patent eligibility." (quoting *Mayo*, 566 U.S. at 84-85)).

V.   THE '986, '426 AND '537 NETWORK MANAGEMENT PATENTS

A.   Background of the Network Management Patents

1.   The '986 Patent and its Representative Claim

The '986 patent explains that wireless communication systems with directional antennas were known, and that in such systems, scheduling time slots to establish communication links between wireless communication systems was a common scheme. '986 at 1:25-64; *see also* Am. Compl. (Dkt. 15), ¶ 15 (admitting that TDMA was a known scheme for establishing communication links). According to the '986 patent, however, scheduling time slots for wireless communication systems "is complex" when those systems are mobile. '986 at 1:65-67.

The '986 patent purports to address such complexity by "schedul[ing] time slots . . . in a manner that is responsive to variations in communication link demands in a mobile wireless network." *Id.* at 2:15-19. But the '986 patent does not claim any new mobile systems or components, or new functionality for known systems or components; rather, it claims merely what a person could do in her mind or with pen and paper: schedule something ("semi-permanent time slots"); determine something ("link utilization metrics"); and schedule something else ("demand assigned time slots") based on what was determined ("the link utilization metrics"). Asserted claim 25 is illustrative:[7]

> 25. A communication method for a wireless communication network comprising a plurality of mobile nodes each comprising a data queue, the method comprising:
>
> scheduling respective semi-permanent time slots to establish communication links between respective pairs of mobile nodes for transmitting data stored

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[7] Harris's Amended Complaint alleges that Huawei infringes "one or more claims" of the '986 patent, but specifically identifies only claim 25. Am. Compl. (Dkt. 15), ¶ 57.

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in the data queues therebetween;

determining link utilization metrics for each communication link based upon a
quantity of data previously sent over the communication link during the
semi-permanent time slots and the data queues; and

scheduling demand assigned time slots for establishing additional
communication links between the pairs of mobile nodes for transmitting the
data based upon the link utilization metrics.

Claim 25 is representative of all claims (1-32) of the '986 patent, as all claims are linked

to the same abstract idea of scheduling time-slots based on network linkage usage, and none adds

any inventive concept. Independent claim 17 is nearly identical to representative claim 25,

except that the method of claim 17, which contains the same three steps as claim 25, specifies

that the transmitted data has different priority levels, and that scheduling is based upon "link

utilization metrics" *and* "data priority levels." Independent apparatus claims 1 and 9 are

essentially identical to claims 17 and 25, respectively, except that claims 1 and 9 are written in

apparatus form, and recite a generic "mobile node" having a generic "transceiver" and generic

"controller for" performing the respective steps of claims 17 and 25. Each of the claims that

depend from independent claim 9 (cls. 10-16) recites the same additional limitations as the

claims that depend from representative claim 25 (cls. 26-32), and those additional limitations add

merely more determining and scheduling steps. Dependent claim 16 also adds as a limitation a

"phased array antenna" as part of the claimed mobile node, but the specification acknowledges

that phased array antennas were known in the art. *See* '986 at 1:47-55. Finally, the claims that

depend from independent claim 1 (cls. 2-8) are nearly identical to the claims that depend from

independent claim 17 (cls. 18-24) and, like the other dependent claims of the patent, add merely

more determining and scheduling steps.

2.   The '426 Patent and its Representative Claim

The '426 patent is directed to establishing a communication route between nodes in "a

multichannel mobile ad hoc network." '426 at 1:5-9, 2:40-56. The '426 patent acknowledges

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that multichannel ad hoc wireless networks were well-known,[8] and that various approaches for establishing a route in such a network (such as "best effort approach" or "Quality-of-Service" (QoS) routing) were known. *Id.* at 1:12-22, 1:56-2:27. According to the '426 patent, however, "[c]onventional mobile ad-hoc network routing protocols assume that all nodes are on the same channel permanently," and that even though multichannel mobile ad hoc networks are well-known, "conventional mobile ad-hoc networks do not utilize multiple channels for transmitting packet data." *Id.* at 2:29-36.

As demonstrated by representative claim 8, the alleged invention of the '426 patent is simply sending information (*e.g.*, a route request) and directing information (*e.g.*, selecting a route) over a multichannel mobile ad hoc network:[9]

> 8. A method for operating a mobile ad hoc network comprising a plurality of wireless mobile nodes and a plurality of wireless communication links connecting the plurality of nodes together over a plurality of electrically separate wireless channels, the method comprising:
>
> at a source node, sending a route request over each of the plurality of electrically separate channels to discover routing to a destination node; and
>
> at the source node, selecting a route to the destination node on at least one of the plurality of electrically separate channels.

Notably, the claims say nothing about *how* to send routing requests over multiple channels; the claims just say "do it." Likewise, the specification spends only a scant few lines discussing the sending of routing requests over multiple channels, and likewise just says "do it" without describing how. *See* '426 at 5:3-18 (discussing block 102 of FIG. 8). The specification also states that after the source node sends a transmission on each channel to each node "one-hop" away, route discovery "proceeds as usual," *i.e.*, conventionally. *Id.* at 5:14-20. The claims also do not provide any limitation on *how* the route is selected—claim 8 requires just "selecting a

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[8] A mobile ad hoc network is a network characterized by a "lack of any fixed infrastructure"—*i.e.*, it is wireless—and is multichannel, as it is "wirelessly connected by one or more radio frequency channels." '426 at 1:12-19.

[9] Harris's Amended Complaint alleges that Huawei infringes "one or more claims" of the '426 patent, but specifically identifies only claim 8. Am. Compl. (Dkt. 15), ¶ 84.

route," and none of the dependent claims provides any further specificity on that selection. In fact, the specification makes clear that the selected route could be one *or all* of the channels over which a route request had been sent. *Id.* at 6:50-54, 10:14-17.

Claim 8 is representative of all claims (1-27) of the '426 patent, as each is linked to the same abstract idea described above, and none adds any inventive concept. Independent claim 18 is merely an apparatus for performing the method of claim 8, where the apparatus is comprised of generic, conventional components (*i.e.*, mobile nodes having a communications device for communicating and a controller). Independent method claim 1 merely adds, to the method of claim 8, two additional, generic steps of (i) generating a reply from the destination node to the source node, and (ii) actually sending a transmission along the selected route. Those same features also are the added features of dependent claims 4, 10, 12, 20 and 22. The remaining dependent claims merely add limitations concerning the type of data communicated (cls. 3, 14, 24); the timing of when data is communicated (*e.g.*, sequentially or in reverse order) (cls. 2, 11, 13, 21, 23); the prioritization of routes "based upon" some metric (including at least one metric that the patent acknowledges was conventional, *see infra* fn. 13) without providing any limitation on how those metrics are derived, or how the determination based upon that metric is made (cls. 5, 6, 15, 16, 25, 26); the selection of more than one route (cls. 7, 17, 27); or an intermediate network node that performs a simple step of determining whether it can support the selected route, and of it can, simply forwards the route request onward (cls. 9, 19).

3.   The '537 Patent and its Representative Claim

The '537 patent explains that, at the time of the alleged invention, for data routing, wireless networks were organized into flat or hierarchical architectures, in which network nodes were organized into different clusters, and where each cluster had a head node that communicated with that cluster's nodes and with the head nodes of other clusters. '537 at Abstract, 1:58-2:13. The formation of clusters and designation of head nodes happened dynamically. '537 at 2:14-19. According to the '537 patent, however, the described clustering techniques of the prior art "generally utilize simple criteria to dynamically designate a cluster

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head without employing network topology information" (*i.e.*, information about the arrangement of the network). '537 at 3:41-45.

The '537 patent purports to solve the problem of not utilizing network topology information to designate head nodes by "utilizing network topology information to identify network nodes crucial for relaying traffic [*i.e.*, head nodes]." *Id.* at 4:17-19. The specification further explains that designation of head nodes may depend upon the interval (time) between data packet transmissions. *Id.* at 4:32-37. To purportedly achieve those ends, the '537 patent does not claim any new, non-conventional system or component, or new functionality of a known system or component; rather, it claims generic network components for performing conventional functions, like sending, directing, and monitoring information. Representative claim 30 recites:[10]

> 30. A communications network comprising:
>
>> a plurality of communication units to transmit and receive messages within said network, wherein each said communication unit includes:
>>
>> a status transmission module to facilitate periodic transmission of a unit status message;
>>
>> an interval module to adjust the time between each said periodic transmission in response to detecting modifications in connectivity with neighboring units; and
>>
>> a configuration module to determine a status of that communication unit as a routing unit for routing network traffic or as a member unit of a corresponding routing unit in accordance with information contained within received unit status messages, wherein said communication unit status as said routing unit is fixed for routing subsequent network messages and re-evaluated in response to changes in network connectivity.

Claim 30 is representative of all claims (1-68) in the '537 patent, as all claims are linked to the same abstract idea of sending and directing information, and monitoring the received information, without adding any inventive concept. The claims that depend from 30 (cls. 31-32) specify merely the type of information sent (radio signals, cl. 31) or how frequently it is sent

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[10] Harris's Amended Complaint alleges that Huawei infringes "one or more claims" of the '537 patent, but specifically identifies only claim 30. Am. Compl., ¶ 70.

(increase the time between transmission based on a calculation, cl. 32). Independent method claim 33 is nearly identical to representative claim 30, except that claim 33 is written in method form, and its dependent claims (cls. 34-35) are effectively identical to claims 31-32.

Independent apparatus claim 36 is nearly identical to independent method claim 45, and both recite the same abstract concept as claim 30 while adding a further limitation only on the type of information sent—namely, the routing unit is "fixed for flooding subsequent network connectivity messages," a feature that the specification admits was known. *See* '537 at 2:25-28; 29:33-39. Each of those claims' dependents (cls. 37-44, 46-53) recite merely additional information being sent, received, requested, or monitored, and do not change the fundamental nature of the claims as being directed to transmitting and monitoring information in a network.

Independent apparatus claim 1 is nearly the same as method claim 16, but is written as an apparatus for performing that method. Both claims recite the same abstract concept as claim 30— (i) sending/receiving ("transmit an outgoing message," "receive an incoming message," cl. 1; "transmitting and receiving messages," cl. 16); (ii) directing information ("designate said communication unit as said routing unit," "re-evaluate said communication unit designation," cl. 1; "designating said communication unit as said routing unit," "re-evaluating said communication unit designation," cl. 16); and (iii) monitoring the received information in a network ("examine said network connectivity," cl. 1; "examining network connectivity," cl. 16), without adding anything inventive. Similar to the patent's other dependent claims, the claims that depend from claims 1 and 16 specify merely the type of information sent (cls. 2-3, 17), how frequently it is sent (cls. 4-6, 18-20), or additional information being sent, received, requested, or monitored (cls. 7-15, 21-29).

Independent claims 54 and 59 are identical to claims 1 and 16, respectively, except that they require a "wireless" network for communications among devices that are further away. Each of the claims that depend from those claims adds merely "an ad-hoc wireless communications" network (cls. 55 and 60), which was known in the art, *id.* at 1:40-43, specify merely how frequently the information is sent (cls. 56-57, 61-62), or recite merely additional

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information being sent (cls. 58 and 63).

Finally, independent apparatus claim 64 is basically identical to claim 59 except that claim 64 specifies the type of information being sent (*i.e.*, radio signals), and the claims that depend from claim 64 (cls. 65-68) are identical to the claims that depend on claim 54.

B.   *Alice* Step One: The Network Management Patents Are Directed to Abstract Ideas Relating to Communicating and Organizing Information In A Wireless Network.

The Federal Circuit has established that claims "involv[ing] the conveyance and manipulation of information using wireless communication and computer technology," without significantly more, are not patent eligible. *Affinity Labs*, 838 F.3d at 1261; *see also Two-Way Media*, 874 F.3d at 1337 (invalidating claims reciting "method[s] of routing information"). The claims of the '986, '426, and '537 patents all fall within this category of abstract ideas, as they recite nothing more than methods and systems for conveying and manipulating information in pre-existing wireless networks. Indeed, all of the claims are directed to concepts that are practiced as part of social or other interpersonal networks. That these abstract ideas are applied to a particular environment, a network, does not render them patent-eligible. *Elec. Power*, 830 F.3d at 1354.

'986 patent. The '986 patent is directed to acquiring information (communication link usage) and organizing events (scheduling time slots). This is precisely the Federal Circuit's basis for finding the claims in *Interval Licensing* abstract. 896 F.3d at 1346 ("[T]he recited claims are directed to an abstract idea because they consist of generic and conventional information acquisition and organization steps . . . ."). Indeed, the limitations of the claims here do not instruct ***how*** technologically to perform the claimed steps (*e.g.*, scheduling time slots or establishing communication links), only that they should be done. *See id.* at 1345 (finding that the "limitations are for either collecting a second data set or controlling the order and timing of when to display the second data set, not for *how* to engineer or program the display of the second data set" (emphasis in original)). Such lack of specificity underscores the claims' abstractness.

As an independent reason to hold the claims abstract, they apply merely longstanding practices of organizing human behavior to a "wireless communication network environment," *see* '986 at 57:5-60:65, and the recited steps can be performed mentally or with pen and paper. *See Synopsys*, 839 F.3d at 1147; *CyberSource*, 654 F.3d at 1371. Representative claim 25 is analogous to scheduling times to talk between participants in a social network, and changing the frequency of those meeting based on whether the scheduled amount of time was sufficient in past meetings.[11] Automating abstract scheduling processes using generic transceivers and controllers is still abstract. *See Credit Acceptance*, 859 F.3d at 1055.

'426 and '537 patents: The claims of the '426 and '537 patents are similarly directed to abstract ideas: sending and directing information in a network and, in the case of the '537 patent, monitoring received information. These abstract ideas are ineligible for protection. *See, e.g.*, *Affinity*, 838 F.3d at 1261; *Two-Way Media*, 874 F.3d at 1336. As shown in the chart attached as Appendix C, representative claim 8 of the '426 patent and representative claim 30 of the '537 patent closely track the representative claim in *Two-Way Media* that the Federal Circuit held was impermissibly abstract.

The claims of the '426 and '537 patents require that the recited generic devices (*e.g.*, nodes/controllers and communication units, respectively) be configured to perform communication tasks that were conventional as of the priority date—such as sending and receiving communications—but do not specify in a non-abstract way how to configure the devices or implement the communication method to achieve their intended results, let alone recite an inventive means for doing so. Instead, the claims recite merely generic components and describe a method using result-based functional language for communicating information

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[11] Similarly, an urban planner schedules traffic lights to be green at set intervals to allow flow of cars ("semi-permanent time slots"); assesses how many cars pass through the intersection during each scheduled time slot versus how many cars remain in queue to pass through the intersection ("link utilization metrics"); and schedules additional times for the light to stay green ("demand assigned time slots") based upon the flow of traffic, for example, during rush hour ("based upon the link utilization metrics").

between devices.

For example, representative claim 8 of the '426 patent recites a method comprised of two abstract steps: "at a source node, ***sending a route request*** over each of the plurality of electrically separate channels to discover routing to a destination node" and "at the source node, ***selecting a route*** to the destination node on at least one of the plurality of electrically separate channels." The "source node" is simply a conventional computer component, such as a laptop computer, PDA, or mobile phone, and does not save the claim from abstractness. '426 at 4:63-66. Similarly, limiting the type of data sent (route request) or selected (a route) does not save these claims from being abstract. *See SAP Am.*, 898 F.3d at 1169 ("We have already noted that limitation of the claims to a particular field of information — here, investment information — does not move the claims out of the realm of abstract ideas.").[12] Moreover, the specification admits that routing protocols, collecting routing information through route requets, and selecting routes was known.[13] *See* '426 at 1:60-2:20, 5:19-20, 6:23-27 (noting that the route request ("RREQ") messages referred to in the specifiation are "conventional" message types).

Moreover, applying this abstract idea in a particular context—here, a network where nodes are connected over "electrically separate wireless channels"—does not "render an otherwise abstract concept any less abstract." *Umbanet*, 263 F. Supp. 3d at 653 (citation omitted); *see also Capital One*, 850 F.3d at 1340 (holding that application of alleged invention to

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[12] Similarly, the recitation in two the dependent claims (9 and 19) of an intermediate node that receives and forwards the route request does not save those claims from abstractness because like all of the other claims, "nothing in these claim requires anything other than conventional computer and network components operating according to their ordinary functions." *Two-Way Media*, 874 F.3d at 1341. Moreover, in *DealerTrack, Inc. v. Huber*, the Court rejected claims involving "receiving data from one source," "selectively forwarding the data," and "forwarding reply data to the first source." 674 F.3d 1315, 1333 (Fed. Cir. 2012).

[13] Indeed, the specification admits that "conventional routing protocols use a best efforts approach in selecting a route" where the "number of hops" is the main criteria, '426 at 2:12-17, while the claims of the '426 patent expressly encompass route selection using that "best efforts" approach. In particular, dependent claims 6, 16, and 26 each add as a limitation to their corresponding independent claims that that discovered routes are prioritized by one of several listed criteria, one of which is "hop count." *Id.* at 8:42-46. Necessarily, then, the independent claims (as well as all other dependent claims) encompass using "hop count" in selecting a route.

a specialized computer language (XML) "do[es] not make an abstract concept any less abstract"). While the specification contends that "[c]ontrary to conventional mobile ad-hoc networks, the communication links 32 [of the alleged invention] exist over a plurality of channels," '426 at 4:67-5:2, nowhere does the specification address **how** to establish such an allegedly unconventional network, just as the claims are silent on **how** to send route requests over separate channels—the claims just say to do it. *Compare Univ. Fla.*, slip op. at 9 (holding patent to be invalid under § 101 where "neither the [asserted] patent nor its claims, explains *how* the drivers do the conversion that [plaintiff] points to" (emphasis in original)); *see also Alice*, 573 U.S. at 221 ("*Mayo* made clear that transformation into a patent-eligible application requires 'more than simply stat[ing] the [abstract idea] while adding the words "apply it."'" (citation omitted)).

Similarly, representative claim 30 of the '537 patent recites a "communications network comprising[] a plurality of communication units **to transmit and receive messages** within said network." '537 at 28:29-32. The claim as a whole is directed to the abstract concept of sending and directing information, and monitoring the sent information over a wireless network. Indeed, representative claim 30 is analogous to the claims at issue in *Two-Way Media*, which the Federal Circuit determined were directed to the abstract idea of "(1) sending information, (2) directing the sent information, (3) monitoring receipt of the sent information." 874 F.3d at 1337. In *Two-Way Media*, the asserted claim generally recited "a method for routing information using result-based functional language," but it did "not sufficiently describe how to achieve these results in a non-abstract way." *Id.* As in *Two-Way Media*, '537 patent claim 30 similarly uses result-oriented functional language.

In other words, the '426 and '537 patents are directed to sending information (*e.g.*, a route request or status message) and directing information (*e.g.*, selecting a route or adjusting the time) over a mobile ad hoc or wireless network, and, in the case of the '537 patent, monitoring received information (*e.g.*, determining status of communication unit in accordance with information received), which is precisely what the Federal Circuit found abstract in *Affinity Lab*s

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and *Two-Way Media*. *Affinity Labs*, 838 F.3d at 1258 (invalidating claims directed to the "broad and familiar concept concerning information distribution"); *Two-Way Media*, 874 F.3d at 1337.

Beyond the fact that the claims are directed to merely communicating information, the claims of the '426 and '537 patents are impermissibly abstract for the independent reason that they simply introduce existing practices and mental processes into a particular environment—namely, wireless communication networks. *See TLI Commc'ns*, 823 F.3d at 612; *Intellectual Ventures I*, 850 F.3d at 1330. Humans have long been transmitting, directing, and monitoring communications in and over networks of all sorts.

For example, the '426 patent is directed to nothing more than the conventional route finding and selection a person might engage in to deliver information from point A to point B. For example, a person might reach out to different acquaintances (*e.g.*, in different networks such as work, school, family, etc.) to find a connection to a third party through intermediaries (similar to the concept of "six degrees of separation") and then select one of those routes to communicate with the third party. Similarly, parents moving to a new town may instruct their teenager to try different routes or modes (*e.g.*, car, bicycle, bus) to get to the local high school before selecting a route or mode, just as a caravan may dispatch one or more scouts over different routes to find the best one to the next destination. Automating this process with generic components, such as a mobile node and controller, is still abstract.

Similarly, the '537 patent is directed to longstanding methods of human communication, for example, in the military. As an example, a network of fortifications (*e.g.*, castles, forts, or garrisons) includes fortifications arranged, *e.g.*, along a network of roads or trading routes ("[a] communication network comprising: a plurality of communication units to transmit and receive messages . . . ."). '537 at 28:28-30 (cl. 30). These fortifications periodically send messages, goods, and supplies to neighboring fortifications ("status transmission module to facilitate periodic transmission of a unit status message"). *Id.* at 28:33-34. If a fortification in the network has been incommunicado, neighboring fortifications may send out messages to that fortification (and/or to other fortifications in the network) with increased frequency to learn if the

incommunicado fortification is under siege or has been taken[14] ("interval module to adjust the time between each such periodic transmission in response to detecting modifications in connectivity with neighboring units"). *Id.* at 28:35-37. Further, an individual fortification may learn that a supply line or route connecting other fortifications has been taken or blocked, but that its own supply lines/routes remain open, allowing it to be the link between different fortifications ("a configuration module to determine a status of that communication unit as a routing unit . . . ."). *Id.* at 28:38-46. Figures 1A and 5 of the '537 patent, which purport to depict the claimed invention, illustrate a topology of the foregoing example, and confirm that the claims of the '537 patent merely apply age-old practices of organizing human activity to a computer network, and therefore are abstract.

C.   *Alice* Step Two: The Network Management Patents Use Only Conventional Network Components to Perform Their Conventional Functions

The claims of the '986, '426, and '537 patents do not add "significantly more" to the abstract idea—*i.e.,* something "inventive"—that is "sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 217-18 (citation omitted). Once the abstract ideas are stripped away, all that is left are generic or conventional components, or components recited in purely functional terms, none of which is sufficient to transform an abstract idea into material that is patent-eligible. *See id.* at 222-23.

The hardware recited in the claims of the '986, '426, and '537 patents is generic and conventional, *e.g.*: antennas, transmitters, transceivers, receivers, processors and controllers. The patents do not purport to have invented or improved any of these devices, and instead acknowledge that known devices may be used and that the configuration or arrangement of such devices is not essential to the invention. In fact, the various specifications admit that mobile and wireless communication systems and related devices already existed and were conventional. *See, e.g.*, '986 at 1:47-49 (describing prior art as disclosing "antennas being used for establishing

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[14] Similarly, if a new fortification is established, the fortification that learns of that fact would send out additional messages to the other fortifications to inform them of this new development.

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communication links within a network of wireless communication systems"); '426 at 4:63-66

("The nodes 30, such as laptop computers, personal digital assistants (PDAs) or mobile phones,

are connected by wireless communication links 32 as would be appreciated by the skilled

artisan."), 6:22-27 ("The conventional DSR message types RREQ, RREP, RRER are defined as

optional packet types, and can be used as defined for the conventional operation of the protocol

to support 'best effort' traffic in a backwards compatibility mode."); '537 at 21:20-30 ("The

nodes may communicate via any suitable communications medium (*e.g.*, wired or wireless

communication devices, etc.). The present invention node may include any quantity of

conventional or other transmitters, . . . and any quantity of conventional or other receivers . . . ."),

7:2-6 ("The transmitter is preferably implemented by a conventional transmitter and transmits

messages from the processor . . . ."), 7:6-9 ("Receiver 24 is typically implemented by a

conventional receiver and configured to receive signals . . . ."). Accordingly, none of those

recited components saves the claims from ineligibility.[15]

   Nor can the routine functions performed by these components, such as "receiving" and

"transmitting" information, suffice to transform the claims into a patent-eligible application of

the abstract idea. *Compare Affinity Labs*, 838 F.3d at 1262 (claimed functions "such as

transmitting and receiving signals" supported finding of no inventive concept) and *Intellectual

Ventures I*, 850 F.3d at 1328-29 (finding that sending and receiving information using computers

is routine and generic) *with* '986 at 2:16-32, 57:5-19 and 60:4-18 (cls. 1 and 25) (reciting use of

generic features of wireless communication networks, such as wireless transceivers and wireless

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[15] Likewise, the Federal Circuit has held that such components are generic physical components that cannot supply an inventive concept. *See, e.g.*, *Maxon, LLC v. Funai Corp.*, 726 F. App'x 797, 799-800 (Fed. Cir. 2018) (finding that "a transceiver" "do[es] not transform the claimed abstract idea into eligible subject matter under *Alice*."); *Accenture Global Servs., GmbH v. Guidewire Software, Inc.,* 728 F.3d 1336, 1345 (Fed. Cir. 2013); *Alice*, 573 U.S. at 226 (finding a "'communications controller'" to be "purely functional and generic" because "[n]early every computer will include a 'communications controller' . . . capable of performing the basic calculation, storage, and transmission functions required by the . . . claims"); *Mortg. Grader*, 811 F.3d at 1324-25 (finding components such as an "interface," "network," and "database" generic and failing to satisfy the inventive concept requirement).

controllers, as well as routine functions, such as scheduling and transmitting data, to implement the underlying idea); '426 at 2:40-56, 7:32-53 and 8:7-17 (cls. 1 and 8) (reciting use of generic features of mobile ad hoc networks, such as wireless mobile nodes and wireless communication links, as well as routine functions, such as sending information and selecting the route used to send the information, to implement the underlying idea); '537 at 6:63-7:17, 23:35-45 and 28:19-46 (cls. 1 and 30) (reciting use of generic features of communications networks, such as transmitters, receivers, and communication units, as well as routine functions, such as transmitting and receiving messages, to implement the underlying idea).

In short, "[t]he features set forth in the claims are described and claimed generically rather than with the specificity necessary to show how those components provide a concrete solution to the problem addressed by the patent." *Affinity Labs.*, 838 F.3d at 1271. As in *Affinity Labs.*, "[t]hat is not enough." *Id.* at 1262.

Additionally, the claims are not rooted in computer technology to address a problem specifically arising in the realm of computer networks. Rather, they address problems inherent in any network or system—whether computerized or not. For example, the '986 patent addresses a problem arising in any network of persons who want to communicate with each other—efficient scheduling of time for those communications to occur. Likewise, the '426 patent addresses a widespread issue in any geography or network—selecting a route from point A to point B. Similarly, the '537 patent addresses a problem also arising in a network of persons—creating efficient communication routes within and across groups of persons. Moreover, in purporting to address these problems, none of the claims purports to override the normal operation of the claimed components. *Cf. DDR*, 773 F.3d at 1258 (finding claims to be patent-eligible where the claims at issue "specify *how* interactions with the Internet are manipulated to yield a desired result—a result that *overrides* the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink").

VI.   THE '572 CRYPTOGRAPHY PATENT

A.   Background of the '572 Patent and its Representative Claim

The '572 patent is directed to security in a wireless local area network (LAN). '572 at 1:5-8; 1:64-67. The specification acknowledges that wireless LANs were well-known, *e.g.*, as described in IEEE 802.11 standard, and that security was addressed in the 802.11 standard via WEP encryption. *See id.* at 1:10-55. However, WEP "only protects the data packet information and does not protect the physical layer header," which the '572 patent contends provides "a reduced level of security." *Id.* at 1:51-55. The '572 patent purports to address that shortcoming by using a cryptography circuit to encrypt and decrypt address information in addition to data information.

As reflected in both the claims and the specification, the '572 patent does not purport to disclose or claim a new or unconventional cryptography circuit or algorithm for encrypting/decrypting address information, let alone any other unconventional components. For example, representative claim 1 recites:

1. A secure wireless local area network (LAN) device comprising:

   a housing;

   a wireless transceiver carried by said housing;

   a medium access controller (MAC) carried by said housing; and

   a cryptography circuit carried by said housing and connected to said MAC and
      said wireless transceiver for encrypting both address and data information
      for transmission by at least adding a plurality of encrypting bits to both the
      address and the data information, and for decrypting both the address and
      the data information upon reception.

The specification describes the cryptography circuit in functional terms, as one that implements a (any) cryptography algorithm and uses a (any) cryptographic key, *id.* at 4:20-28, and acknowledges that existing cryptographic circuits may be used, *id.* at 5:54-60. The specification also admits that adding a plurality of encrypting bits is a technique known in the art. *See id.* at 5:42-45. Further, the specification acknowledges that the claimed wireless transceiver and MAC are comprised of standard, off-the-shelf components. *See id.* at 4:32-5:19.

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Like claim 1, all claims are directed to the same abstract idea of encrypting/decrypting select information, and none adds an inventive concept. Each of the claims that depend from claim 1 (cls. 2-13) adds merely more conventional components to the wireless LAN device (such as a connector or antenna) or merely additional functions to the existing components, all of which are conventional. Independent claim 14 is nearly identical to claim 2, except that it adds a generic baseband processor and subtracts the limitation of adding a plurality of encryption bits, and the claims that depend from claim 14 (cls. 15-25) are nearly identical to dependent claims 3-13. Independent claim 26 is basically identical to claim 16, and the claims that depend from claim 26 (cls. 27-37) are identical to the claims that depend from claims 1 and 14. Independent claim 38 is identical to claim 1 except that it requires a plurality of LAN devices instead of just one, and it does not require encryption by adding a plurality of encryption bits. Its dependent claims (cls. 39-46) are identical to the aforementioned dependent claims. Finally, independent method claim 47 is the same as claim 38, but is written in method claim format, and its dependent claims (cls. 48-59) are method claim analogs of the patent's other dependent claims.

B.   ***Alice* Step One: The Principle of Encrypting and Decrypting Data, Like Encoding and Decoding It, Is Abstract and Patent-Ineligible**

An examination of the individual limitations of representative claim 1 of the '572 patent confirms that the claims are directed to the abstract idea of encrypting and decrypting data. Representative claim 1 recites a "secure wireless local area network (LAN) device comprising" and sets forth merely generic components for implementing the desired security (encryption):

Claim Language	Huawei's Explanation of the Limitation
a housing;	Generically recited without any meaningful limit;
a wireless transceiver carried by said housing;	Generically recited without any meaningful limit;
a medium access controller (MAC) carried by said housing; and	Generically recited without any meaningful limit;
a cryptography circuit carried by said housing and connected to said MAC and said wireless transceiver for encrypting both address and data information for transmission by at least adding a plurality of encrypting bits to both the address and the data information, and for decrypting both the address and the data information upon reception.	The circuit is described functionally and must be configured to: (1) encrypt (*i.e.*, encode, using a key) the address and content information of a message by adding more than one encrypting bit to such data; (3) decrypt (*i.e.*, decode, using a key) the same data upon receipt.

In other words, the '572 claims are directed to encrypting and decrypting data—*i.e.*, encoding and decoding data using a key—which is precisely what the Federal Circuit has found abstract in several recent cases. *See, e.g.*, *RecogniCorp*, 855 F.3d at 1326 (finding that the claim "reflects standard encoding and decoding, an abstract concept long utilized to transmit information"); *Return Mail, Inc. v. USPS*, 68 F.3d 1350, 1368 (Fed. Cir. 2017) (finding abstract claims reciting "decoding . . . encoded data"); *Secured Mail*, 873 F.3d at 910 (finding abstract "claims generically provide for the encoding of various data onto a mail object but do not set out how this is to be performed"); *see also Personalized Media Commc'ns, LLC v. Amazon.com, Inc.*, 161 F. Supp. 3d 325, 333 (D. Del. 2015), *aff'd*, 671 F. App'x 777 (Fed. Cir. 2016) (holding patent-ineligible a claim directed to abstract idea of encryption).

Limiting the type of data encrypted, *i.e.*, to address and data information, also does not save these claims from being abstract. *See SAP Amer.*, 898 F.3d at 1169 ("We have already noted that limitation of the claims to a particular field of information — here, investment information — does not move the claims out of the realm of abstract ideas."). Indeed, incorporating particular types of information into an abstract idea does not make the idea any less abstract because "[i]nformation as such is an intangible" and limiting the abstract idea's

application to particular information "does not change its character as information." *Elec. Power*, 830 F.3d at 1353. Accordingly, it is irrelevant that the claims recite particular information to be encrypted—*e.g.*, sender address, data information, etc.

Finally, the claims are not rooted in computer technology to address a problem specifically arising in the realm of computer networks. Protecting information from unauthorized eyes by encrypting it (*i.e.*, encoding it so that only authorized parties can access it) is a centuries-old technique. *Personalized Media*, 161 F. Supp. 3d at 333 ("Cryptography has been used to protect information since ancient Mesopotamia.").

C.   *Alice* Step Two: The Patent Claims No New Components, New Uses for Known Components, or New Approaches to Cryptography

Similar to the claims at issue in *Alice*, the '572 claims, viewed individually and as an ordered combination, simply instruct the practitioner to implement the abstract idea of encryption with routine, conventional computing component. Here, with the abstract idea removed, all that is left in representative claim 1 is a generic housing, generic wireless transceiver, a generic MAC, and a generic cryptography circuit.[16] Nowhere does the '572 patent pretend to have invented any of these standard components or pretend that it has claimed a novel arrangement of them. Further, there is nothing inventive about adding "a plurality of encrypting bits" to the information being encrypted, as the specification admits that technique is known in the art. '572 at 5:42-44; *see Blue Spike, LLC v. Google Inc.*, No. 14-CV-01650-YGR, 2015 WL 5260506, at *7 (N.D. Cal. Sept. 8, 2015), *aff'd*, 669 F. App'x 575 (Fed. Cir. 2016) (holding ineligible "claims [that] do not discuss a novel cryptographic method, but merely contemplate 'well-understood, routine, conventional activity.'" (internal quotation marks and citation omitted)). That the encryption is applied to address information as well as data information is of

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[16] The recitation of generic components, such as a "wireless transceiver" and "medium access controller," is insufficient to transform an abstract concept into a patent-eligible application. *See Maxon*, 726 F. App'x at 799-800 ("[A] transceiver "do[es] not transform the claimed abstract idea into eligible subject matter under *Alice*."); *Alice*, 573 U.S. at 226 ("'communications controller'" is "purely functional and generic"); *Intellectual Ventures I*, 850 F.3d at 1328-29 (sending and receiving information using computers is routine and generic).

no consequence: "merely selecting information, by content or source, for [processing] does nothing significant to differentiate a process from ordinary mental processes." *Elec. Power*, 830 F.3d at 1355.

Further, the specification does not purport to override the normal operation of the recited generic components, including the generic, off-the-shelf cryptography circuit. The "housing" provides a housing for other components; the transceiver sends and receives information; the MAC implements a MAC protocol such as that set forth in the conventional 802.11 standard; and the cryptography circuit encrypts and decrypts information. *See, e.g.*, '572 at 2:1-26. All elements operate in their conventional manner, and the claims fail under § 101.

VII.   NO ADDITIONAL FACT FINDING IS NECESSARY TO DECIDE THIS MOTION.

There can be no genuine issue of disputed fact here over whether any claim limitation is well-understood, routine, and conventional so as to make this motion premature. *See Secured Mail*, 873 F.3d at 912-13 ("[A] court need not 'accept as true allegations that contradict matters properly subject to judicial notice or by exhibit,' such as the claims and the patent specification." (citation omitted)). As shown above (*supra* §§ III-VI), the specifications admit that the various claimed components pre-date the alleged invention and are conventional and generic.

VIII.   CONCLUSION

The Court should dismiss the Amended Complaint.

Dated: March 8, 2019

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CERTIFICATE OF COMPLIANCE WITH THE COURT'S
35 U.S.C. § 101 MOTION PRACTICE ORDER

_____   The parties agree that prior claim construction is not needed to inform the Court's analysis as to patentability.

__X__   The parties disagree on whether prior claim construction is not needed to inform the Court's analysis as to patentability.

/s/ *Melissa R. Smith*
Melissa Smith

CERTIFICATE OF SERVICE

I hereby certify that counsel of record who are deemed to have consented to electronic service are being served this 8th day of March, 2019, with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3).

/s/ *Melissa R. Smith*
Melissa Smith